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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,448	10/29/2001	Jose Joaquin Garcia-Luna-Aceves	UC00-354-2US	2279
8156	7590	11/19/2004	EXAMINER NGUYEN, BRIAN D	
JOHN P. O'BANION O'BANION & RITCHEY LLP 400 CAPITOL MALL SUITE 1550 SACRAMENTO, CA 95814			ART UNIT 2661	PAPER NUMBER

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/023,448

Applicant(s)

GARCIA-LUNA-ACEVES ET AL.

Examiner

Brian D Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on the application filed 10/29/01.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/24/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 6-10 and 14-18 are objected to because of the following informalities:

Appropriate correction is required.

Claim 6, the phase “ordering of messages from rapidly changing sources is supported for overlapping receiver groups and for anonymous hosts.” lacks clear support or antecedent basis in the description.

Claim 7, the phase “distributing ordering among a plurality of nodes across a logical tree.” lacks clear support or antecedent basis in the description.

Claim 8, the phase “using aggregation of ordering primitives to minimize control traffic among nodes.” lack clear support or antecedent basis in the description.

Claim 9, the phase “using address extensions assigned to hosts for self-routing of messages and dynamic distribution of processing load for said ordering.” lack clear support or antecedent basis in the description.

Claim 10, the phase “using said address extensions, supporting total ordering of messages for anonymous and overlapping receiver groups in shared trees.” lack clear support or antecedent basis in the description.

Claims 14-18 has the same problem as claims 6-10, respectively.

2. Claims 3 and 32 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 11 and 34, respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is

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proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 22 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22, lines 4-5, it is unclear which neighbor “said neighbor” is referring to.

Claim 38 has the same problem as claim 22.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 11-13, 19-21, 24-25, 27-28, 30, 32-37, 40-41, 43-44, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Akhtar (6,418,139).

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Regarding claim 1, Akhtar discloses a method for loop-free multipath routing in a network of interconnected nodes, comprising: computing shortest multipath loop-free route distances between a source and corresponding destination (see determining the shortest path and the second shortest path in col. 4, lines 41-49) using loop-free invariant conditions (see loop-free in col. 3, lines 46-47); and exchanging distance values among neighboring routers (see col. 6, lines 9-21); wherein the loop-free invariant conditions prevent a count-to-infinity problem and ensure termination of the computing of loop-free route distances (see loop-free in col. 3, lines 46-47 and constructing a tree of shortest paths in col. 6, line 14 can prevent a count-to-infinity problem and ensure termination of the computing of loop-free route distances).

Regarding claim 2, Akhtar discloses generating a routing graph from the route distances (a tree of shortest paths in col. 6, line 14).

Regarding claim 3, Akhtar discloses if the distance increases for a route, executing a diffusing computation (see col. 3, lines 44-47 and col. 6, lines 24-27 where Akhtar teaches calculating the optimal routes when a router's link state changes (the distance increase/decrease)).

Regarding claim 4, Akhtar discloses providing multiple next-hop choices for each destination (see col. 6, lines 17-24 where Akhtar teaches that several equal-cost routes (multiple next-hop choices) to a destination exist).

Regarding claim 5, Akhtar discloses nodes exchange messages containing distance information to maintain a routing table at each node (see col. 3, lines 49-54 and col. 7, lines 1-2).

Regarding claims 11-13, claims 11-13 are method claims that have substantially the same limitations as claims 1-3 and 5. Therefore, they are subject to the same rejection.

Regarding claims 19-20, 34, and 36, claims 19-20, 34, and 36 are method claims that have substantially the same limitations as the combination of claims 1, 3, and 5. Therefore, they are subject to the same rejection.

Regarding claims 21 and 37, Akhtar discloses the diffusing computation is executed by sending query messages to neighbors with the best distance through the subset of neighboring node (see col. 6, lines 24-27 and col. 7, lines 15-25 where Akhtar teaches of calculating the best paths and the updates are sent to neighboring routers).

Regarding claims 24, 25, 27, 40, 41, and 43, Akhtar discloses tables comprise link distance (see col. 7, lines 1-2 and 22-25).

Regarding claims 28 and 44, Akhtar discloses the cost of adjacent links (see col. 4, lines 44-45).

Regarding claims 30 and 46, Akhtar implicitly discloses the LFI conditions require that for each destination j , a node i can choose successor whose distance to j , as known to i , is less than the distance of node i to j that is known to its neighbors because Akhtar discloses loop-free routes comprise constructing a tree of shortest paths.

Regarding claim 32, Akhtar discloses Bellman-Ford algorithm (see col. 7, lines 15-25).

Regarding claims 33 and 35, Akhtar discloses generating a routing graph (a tree of shortest paths in col. 6, line 14).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1-48 are rejected under 35 U.S.C. 102(a) as being anticipated by Vutukury S. et al “MPATH: a loop-free multipath routing algorithm”.

Regarding claims 1-48, Vutukury discloses a method for loop-free multipath routing (see title) in a network of interconnected router nodes comprising: computing shortest multipath distance, exchange distance values among neighboring routers (see abstract), executing a diffusing computation (see introduction), routing tables (see paragraph 2.2), and loop-free invariant conditions (see paragraph 2.4).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 29 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akhtar (6,418,139).

Regarding claims 29 and 45, Akhtar does not specifically teach if a link is down its cost is considered to be infinity and the distance to unreachable nodes is also considered to be infinity. However, to consider the cost if the link is down and the distance to unreachable nodes to be infinity is a matter of choice because the cost if the link is down and the distance to unreachable nodes can be considered anything.

Conclusion

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11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

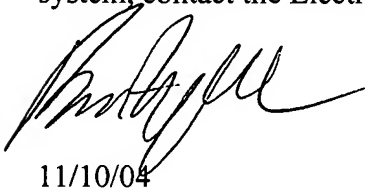
Seid (5,754,543), Perlman et al (6,768,740), Khotimsky et al (6,646,989), and Rochberger et al (6,205,146).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian D Nguyen whose telephone number is (571) 272-3084.

The examiner can normally be reached on 7:30-6:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



11/10/04

BRIAN NGUYEN
PRIMARY EXAMINER